A.2.6 Astrophysics Theory Program (ATP)

1. Scope of Program

The Astrophysics Theory Program is intended to support efforts to develop basic theory needed for NASA's space astrophysics programs. The periods of performance of investigations that may be submitted for this research element ranges from one to three years, although most proposals that are selected have a duration of three years. Abstracts of currently funded ATP projects can be found at <http://www.hq.nasa.gov/office/oss/codesr/results/ATP_Abstracts.html>.

Proposals submitted for the ATP should:

- be directly relevant to space astrophysics: the proposed studies should facilitate the interpretation of existing data from space astrophysics missions, foreign as well as domestic, or should lead to predictions that can be tested with space astrophysics observations; and
- address theoretical problems in space astrophysics that are either broadly applicable across astrophysics or narrowly focused on a particular subdiscipline of space astrophysics, for example, infrared and radio astrophysics, ultraviolet and visible astrophysics, high energy astrophysics, relativity and gravitational astrophysics, galactic cosmic ray/particle astrophysics; the proposals should consist predominantly of theoretical studies and the development of theoretical models that may also incidentally include data analysis and comparison tests of theory against data from space astrophysics missions.

Conversely, proposals to the Astrophysics Theory Program may not:

- consist primarily of data reduction or data analysis (such proposals should be directed to the mission-specific programs, the Astrophysics Data Program, or the Long-Term Space Astrophysics Research Program);
- address theoretical topics that are predominantly unrelated to space astrophysics needs (such proposals should be directed to the appropriate Federal agencies);
- deal strictly or predominantly with solar system objects or solar-terrestrial interaction studies, including solar energetic particles;
- request support for organizing and/or hosting scientific meetings; or
- request support for substantial computing facilities or resources.

Note that this year "Atomic and Molecular Astrophysics" theory proposals should apply to the "Space Astrophysics Research and Analysis (SARA)" program, Appendix A.2.10 in this ROSS 99, and not to ATP.

2. Topic Categories

For the purposes of conducting the review, every proposal for this ATP must be labeled with one (or more if appropriate) suggested Topic Categories from the current list below in both its Notice of Intent and in the proposal submission itself (note that the electronic format for the Cover Page will include a line for entry of one of these topics; see Section C.5.3 of Appendix C). The primary use of these Topic Categories is to facilitate the assignment of the proposal to an appropriate review panel; NASA reserves the right to assign a proposal to a different Topic Category(s).

1. *Star Formation and Pre-Main Sequence Stars* (star forming clouds, protoplanetary and debris disks, protostars, T Tauri stars, brown dwarfs; dust and astrochemistry)
2. *Main Sequence* Stars;
3. *Post-Main Sequence Stars and Collapsed Objects* (giants, isolated white dwarfs, isolated neutron stars, central stars of planetary nebulae);
4. *Binary Systems* (cataclysmic variables, x-ray binaries, black hole binaries);
5. Interstellar Medium and Galactic Structure (supernova remnants, dark clouds, interstellar dust, H II regions, diffuse galactic emission, planetary nebulae);
6. *Galaxies* (normal galaxies, interacting galaxies, starburst galaxies, Seyfert galaxies, Active Galactic Nucleus (AGN's), quasars, radio galaxies);
7. *Large Scale Cosmic Structures* (clusters of galaxies, galaxy environment and evolution, intracluster medium, diffuse x-ray background, relativity and gravity, cosmology).
8. *Cosmic Ray/Particle Astrophysics*

3. Programmatic Considerations

Two types of proposals will be considered: Proposals from Principal Investigators who head research groups and proposals from individual researchers. A proposal from a research group must clearly justify the scientific need for and logic of the team effort; a set of unrelated or only loosely related research topics by several investigators does not constitute a valid group effort. All proposals, regardless of the size of their budget requests, are competitively reviewed against each other.

It is anticipated that approximately $2.5M will be available through this ROSS-99 NRA for the funding of new awards for this program element, to fund proposals of nominally three years duration each. The typical level of support per year is expected to be in the range of $50K to $100K for individuals and up to a maximum of $300K for research groups. The file called "ATP Statistics" located with the abstracts of previously awarded ATP grants (see URL address above) also contains funding statistics for the last review cycle.

NOTE: Appendix C contains critical information necessary for the preparation and submission of proposals submitted in response to this NRA. In particular, Section C.5.3 contains detailed standards concerning the format, page limits, and contents of a proposal. The submission of a proposal not in compliance with these standards may complicate and/or hinder its efficient and complete evaluation. Therefore, deficiencies in format and/or omission of key information may result in a proposal being found unacceptable for evaluation, or if evaluated, being adversely affected during the evaluation process.

The schedules for submission of the Notice of Intent and proposal are given in Table 1 of the cover letter of this NRA. The World Wide Web site for submitting both the NOI and the Cover Page/Proposal Summary (see Appendix C.5) is <http://props.oss.hq.nasa.gov>; proposers without access to the Web or who experience difficulty in using this site may contact Ms. Deborah Tripp (E-mail: deb.tripp@hq.nasa.gov) for assistance. Hard copies of the proposals are to be delivered to:

ROSS-99 NASA Research Announcement
Astrophysics Theory Program
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Suite 700
400 Virginia Avenue, SW
Washington, DC 20024
Phone number for commercial delivery: (202) 554-2775

For further information, contact the Discipline Scientist for this program element:

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